

Application Number 10/000,287
Amendment dated April 27, 2005
Reply to Office Action of January 27, 2005

REMARKS

The Applicant affirms the election of Group II, claims 11-20.

The drawings have been objected to. The drawings are amended herein to add the legend "Prior Art" to Figure 1. It is believed that the objection to the drawings is overcome, and reconsideration is requested.

Claims 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada, *et al.* (U.S. Patent Number 6,124,888). Claims 12, 13, 15, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada, *et al.* in view of Roberts (U.S. Patent Number 5,541,654). Claims 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada, *et al.* in view of Petrick, *et al.* (U.S. Patent Number 5,668,375). In view of the amendments to the claims and the following remarks, the rejections are respectfully traversed, and reconsideration of the rejections is requested.

In the present invention of claims 11-20, during a high speed image pickup, a first horizontal line is enabled, outputting a charge signal of the first horizontal line by a vertical transmission signal, and a vertical erasure signal is then applied, erasing the charge signal of the first horizontal line. A second horizontal line is then enabled. The vertical erasure signal is applied for a second time, erasing the charge signal of the second horizontal line. A horizontal line following the first horizontal line is then enabled, and the vertical transmission signal is applied for a second time, outputting a charge signal of the horizontal line following the first horizontal line. Thus, the vertical erasure signal is applied for the second time, erasing the charge signal of the second horizontal line before the vertical transmission signal is applied for the second time, reducing the amount of time for which charges are accumulated.

Terada, *et al.* discloses an image pickup apparatus in which all the pixels of a horizontal line are read out. After the completion of the reading out of the pixels in the horizontal line, the

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gate potential of pixels is brought to the reset potential, and the charge of all the pixels of the horizontal line are discharged. Following the reset operation, a vertical selection pulse is sent sequentially to the upper direction by the vertical driving pulses, and repeatedly carries out the horizontal scanning operation in repetition (See Terada, *et al.*, column 13, lines 26-60). Thus, the pixels of a horizontal line are read out, are then reset, then the next horizontal line is readout, and the process repeats.

Therefore, Terada, *et al.* fails to teach or suggest that a vertical erasure signal is applied for a second time erasing a charge signal of a second horizontal line before a vertical transmission signal is applied for a second time. Instead, in Terada, *et al.*, after a horizontal line is read out, the charges of the pixels are reset, and this process is repeated for all the horizontal lines in a sequential manner. Thus, the second time the transmission signal is applied precedes the second time the reset signal is applied. Therefore, it is believed that the amended claims are allowable over the cited reference, and reconsideration of the rejections of claims 11 and 16 under 35 U.S.C. 103(a) as being unpatentable over Terada, *et al.* is respectfully requested.

Roberts discloses an imaging device with random access architecture. A capacitor 44 is charged, output, and then reset in preparation for another interval of time integration storing charge on the capacitor 44 (see Roberts, column 8, lines 26-45). Thus, the charge is reset after the charge has been output.

Therefore, Roberts fails to teach or suggest that a vertical erasure signal is applied for a second time erasing a charge signal of a second horizontal line before a vertical transmission signal is applied for a second time, as set forth in the amended claims. Instead, in Roberts, the charge in the capacitor is transmitted before it is reset.

Neither the Terada, *et al.* nor Roberts patents teaches or suggests a vertical erasure signal is applied for a second time erasing a charge signal of a second horizontal line before a vertical

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transmission signal is applied for a second time, as set forth in the amended claims. Accordingly, there is no combination of the references which would provide such teaching or suggestion. Therefore, it is believed that the amended claims are allowable over the cited references, and reconsideration of the rejections of claims 12, 13, 15, 17, 18 and 20 under 35 U.S.C. § 103(a) based on Terada, *et al.* in view of Roberts is respectfully requested.

Petrick, *et al.* discloses an x-ray detector for producing repeated image signals at a frame rate including acquiring an image signal during a scan of each of the rows of cells including charging the cells of a row for a predetermined time, measuring the total charge delivered to each cell of the row by means of charge integrators, and resetting the charge integrators. After the scan of each of the rows, the charge of the cells of each of the rows is restored for a second predetermined time period, thus increasing the amount of time for the recharging of the integrator. The greater recharge time is permissible because no exposure signal is read out and thus no settling time or reset time for the integrator is required. Thus, the charges are not reset, but are recharged (See Petrick, *et al.*, column 3, lines 28-43, and column 6, line 51 - column 7, line 10).

Therefore, Petrick, *et al.* fails to teach or suggest that a vertical erasure signal is applied for a second time erasing a charge signal of a second horizontal line before a vertical transmission signal is applied for a second time, as set forth in the amended claims. Instead, in Petrick, *et al.*, the cells of a row are charged, measured and then reset, and then recharged again. Thus, the charge of the cells is measured for a second time before the signal is reset for a second time.

Neither the Terada, *et al.* nor Petrick, *et al.* patents teaches or suggests a vertical erasure signal is applied for a second time erasing a charge signal of a second horizontal line before a vertical transmission signal is applied for a second time, as set forth in the amended claims. Accordingly, there is no combination of the references which would provide such teaching or

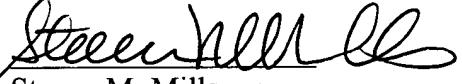
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suggestion. Therefore, it is believed that the amended claims are allowable over the cited references, and reconsideration of the rejections of claims 14 and 19 under 35 U.S.C. § 103(a) based on Terada, *et al.* in view of Petrick, *et al.* is respectfully requested.

In view of the amendments to the claims and the foregoing remarks, it is believed that all claims pending in the application are in condition for allowance, and such allowance is respectfully solicited. If a telephone conference will expedite prosecution of the application, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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Amendments to the Drawings:

The attached sheets of drawings include changes to FIG. 1. The sheet, which includes FIG. 1, replaces the original sheet. In FIG. 1 the legend "PRIOR ART" is added. A marked-up version of the drawing, with revisions shown in red, is included with the amended drawing. Entry of the amendments to the drawings is respectfully requested.

Attachment: Replacement Sheets
Annotated Sheets Showing Changes

FIG. 1
(PRIOR ART)

